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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

Inventors: Carl Alexander Kamb, et al.

Serial No: 09/991,003

Filed: November 16, 2001

For: HUMAN RHINOVIRUS ASSAYS, AND COMPOSITIONS THEREFROM

Group Art Unit:
Examiner:

Certificate of Mailing/Transmission(37 C.F.R. § 1.8(a))

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Joan Karr

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RESPONSE TRANSMITTAL LETTER

Assistant Commissioner for Patents
Washington, D. C. 20231

Sir:

Enclosed herewith for filing are the following:

_____ Response to Restriction Requirement Under 37 U.S.C. § 121.
_____ Preliminary Amendment Under 37 C.F.R. § 1.115.
_____ Amendment and Response Under 37 C.F.R. § 1.111.
_____ Revocation of Power of Attorney and Appointment of New Attorney
_____ Amendment after Final Action Under 37 C.F.R. § 1.116
_____ Request for Extension of Time to File Response Under 37 C.F.R. § 1.136(a).
__X__ Information Disclosure Statement
_____ The Commissioner is hereby authorized to charge Deposit Account No. 501015 in the amount of $_____, calculated as follows:

_____ $55.00/$110.00 for response within first month.
_____ $200.00/$400.00 for response within second month.
_____ $460.00/$920.00 for response within third month.
_____ $720.00/$1,4400.00 for response within fourth month.
_____ Fee for additional claims (see below for calculation).

X The Commissioner is hereby authorized to charge any additional fees which may be required in this application under 37 C.F.R. Sections 1.16-1.17 or to credit any overpayment, to Deposit Account No. 501015. This sheet is filed in duplicate.

Fee-Calculation

Claims:

					Small Entity		OTHER	
					Rate	Fee	Rate	Fee
Basic Fee	Current Claims		Highest Previous			$370.00		$740
Total Claims		-		=	x 9	$	x 18	$
Indep. Claims		-		=	x 42	$	x 84	
Multiple Dependent Claim(s)					+ 140	$	+ 280	$
					TOTAL	$	TOTAL	$

Please address all TELEPHONIC communication to Laura A. Handley, the undersigned attorney of Deltagen Proteomics, Inc. (formerly Arcaris, Inc.) at (801) 303-0304.

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Respectfully submitted,

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Form PTO-1449 (Modified)	U.S. Department of Commerce Patent and Trademark Office	Atty. Docket No. VEN008/01	Serial No. US 09/991/003
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U.S. PATENT DOCUMENTS

*Examiner Initials		Document Number	Issue Date	Name	Class	Subclass	Filing Date If Appropriate
		US5891874	04/06/99	**Anti-viral compound**	514/234 .5		

FOREIGN PATENT DOCUMENTS

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OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, etc.)

		Andries, K., B. Dewindt, M. De Brabander, R. Stokbroekx, and P. A. Janssen. 1988. In vitro activity of R 61837, a new antirhinovirus compound. Arch Virol. **101**:155-67.
		Andries, K., B. Dewindt, J. Snoeks, and R. Willebrords. 1989. Lack of quantitative correlation between inhibition of replication of rhinoviruses by an antiviral drug and their stabilization. Arch Virol. **106**:51-61.
		Badger, J., I. Minor, M. J. Kremer, M. A. Oliveira, T. J. Smith, J. P. Griffith, D. M. Guerin, S. Krishnaswamy, M. Luo, M. G. Rossmann, and et al. 1988. Structural analysis of a series of antiviral agents complexed with human rhinovirus 14. Proc Natl Acad Sci U S A. **85**:3304-8
		Badger, J., I. Minor, M. A. Oliveira, T. J. Smith, and M. G. Rossmann. 1989. Structural analysis of antiviral agents that interact with the capsid of human rhinoviruses. Proteins. **6**:1-19.
		Baginski, S. G., D. C. Pevear, M. Seipel, S. C. Sun, C. A. Benetatos, S. K. Chunduru, C. M. Rice, and M. S. Collett. 2000. Mechanism of action of a pestivirus antiviral compound. Proc Natl Acad Sci U S A. **97**:7981-6.
		Blum, J. H., S. L. Dove, A. Hochschild, and J. J. Mekalanos. 2000. Isolation of peptide aptamers that inhibit intracellular processes. Proc Natl Acad Sci U S A. **97**:2241-6.
		Brown-Augsburger, P., L. M. Vance, S. K. Malcolm, H. Hsiung, D. P. Smith, and B. A. Heinz. 1999. Evidence that enviroxime targets multiple components of the rhinovirus 14 replication

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OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, etc.)		
		complex. Arch Virol. **144**:1569-85.
		Che, Z., N. H. Olson, D. Leippe, W. M. Lee, A. G. Mosser, R. R. Rueckert, T. S. Baker, and T. J. Smith. 1998. Antibody-mediated neutralization of human rhinovirus 14 explored by means of cryoelectron microscopy and X-ray crystallography of virus-Fab complexes. J Virol. **72**:4610-22
		Colonno, R. J., P. L. Callahan, D. M. Leippe, R. R. Rueckert, and J. E. Tomassini. 1989. Inhibition of rhinovirus attachment by neutralizing monoclonal antibodies and their Fab fragments. J Virol. **63**:36-42.
		Conant, R. M., D. C. Thomas, and V. V. Hamparian. 1970. Properties of rhinovirus plaque mutants. Proc Soc Exp Biol Med. **134**:677-82.
		DeLong, D. C., and S. E. Reed. 1980. Inhibition of rhinovirus replication in in organ culture by a potential antiviral drug. J Infect Dis. **141**:87-91.
		Dragovich, P. S., T. J. Prins, R. Zhou, S. E. Webber, J. T. Marakovits, S. A. Fuhrman, A. K. Patick, D. A. Matthews, C. A. Lee, C. E. Ford, B. J. Burke, P. A. Rejto, T. F. Hendrickson, T. Tuntland, E. L. Brown, J. W. Meador, 3rd, R. A. Ferre, J. E. Harr, M. B. Kosa, and S. T. Worland. 1999. Structure-based design, synthesis, and biological evaluation of irreversible human rhinovirus 3C protease inhibitors. 4. Incorporation of P1 lactam moieties as L-glutamine replacements. J Med Chem. **42**:1213-24.
		Dragovich, P. S., S. E. Webber, R. E. Babine, S. A. Fuhrman, A. K. Patick, D. A. Matthews, C. A. Lee, S. H. Reich, T. J. Prins, J. T. Marakovits, E. S. Littlefield, R. Zhou, J. Tikhe, C. E. Ford, M. B. Wallace, J. W. Meador, 3rd, R. A. Ferre, E. L. Brown, S. L. Binford, J. E. Harr, D. M. DeLisle, and S. T. Worland. 1998. Structure-based design, synthesis, and biological evaluation of irreversible human rhinovirus 3C protease inhibitors. 1. Michael acceptor structure-activity studies. J Med Chem. **41**:2806-18.
		Evans, M. R., J. H. Hughes, C. Gercel, and V. V. Hamparian. 1980. Isolation and genetic analysis of temperature-sensitive mutants of rhinovirus type 2. Intervirology. **13**:299-306.
		Garozzo, A., C. C. Cutri, A. Castro, G. Tempera, F. Guerrera, M. C. Sarva, and E. Geremia. 2000. Anti-rhinovirus activity of 3-methylthio-5-aryl-4- isothiazolecarbonitrile derivatives. Antiviral Res. **45**:199-210.
		Gauntt, C. J. 1980. Fragility of the rhinovirus type 14 genome to incubation at 60 degrees. Intervirology. **13**:7-15.
		Gauntt, C. J. 1979. Rhinovirus type 14 persistence in HeLa cells studied by use of guanidine. J Med Virol. **4**:115-24.

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OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, etc.)		
		Gercel, C., K. B. Mahan, and V. V. Hamparian. 1985. Preliminary characterization of a persistent infection of HeLa cells with human rhinovirus type 2. J Gen Virol. **66**:131-9.
		Gern, J. E., E. C. Dick, W. M. Lee, S. Murray, K. Meyer, Z. T. Handzel, and W. W. Busse. 1996. Rhinovirus enters but does not replicate inside monocytes and airway macrophages. J Immunol. **156**:621-7.
		Geyer, C. R., and R. Brent. 2000. Selection of genetic agents from random peptide aptamer expression libraries. Methods Enzymol. **328**:171-208.
		Geyer, C. R., A. Colman-Lerner, and R. Brent. 1999. "Mutagenesis" by peptide aptamers identifies genetic network members and pathway connections. Proc Natl Acad Sci U S A. **96**:8567-72.
		Heinz, B. A., R. R. Rueckert, D. A. Shepard, F. J. Dutko, M. A. McKinlay, M. Fancher, M. G. Rossmann, J. Badger, and T. J. Smith. 1989. Genetic and molecular analyses of spontaneous mutants of human rhinovirus 14 that are resistant to an antiviral compound. J Virol. **63**:2476-85.
		Hendley, J. O., R. D. Abbott, P. P. Beasley, and J. M. Gwaltney. 1994. Effect of inhalation of hot humidified air on experimental rhinovirus infection. Jama. **271**:1112-3.
		Hughes, J. H., M. Mitchell, and V. V. Hamparian. 1979. Rhinoviruses: kinetics of ultraviolet inactivation and effects of UV and heat on immunogenicity. Arch Virol. **61**:313-9.
		Hughes, J. H., D. C. Thomas, V. V. Hamparian, and H. G. Cramblett. 1973. Acid liability of rhinovirus type 14: effect of pH, time, and temperature. Proc Soc Exp Biol Med. **144**:555-60.
		Killington, R. A., E. J. Stott, and D. Lee. 1977. The effect of temperature on the synthesis of rhinovirus type 2 RNA. J Gen Virol. **36**:403-11.
		Lee, W. M., W. Wang, and R. R. Rueckert. 1995. Complete sequence of the RNA genome of human rhinovirus 16, a clinically useful common cold virus belonging to the ICAM-1 receptor group. Virus Genes. **9**:177-81
		Lonberg-Holm, K., and B. D. Korant. 1972. Early interaction of rhinoviruses with host cells. J Virol. **9**:29-40.
		Lonberg-Holm, K., and J. Noble-Harvey. 1973. Comparison of in vitro and cell-mediated alteration of a human Rhinovirus and its inhibition by sodium dodecyl sulfate. J Virol. **12**:819-26.
		Lorens, J. B., M. K. Bennett, D. M. Pearsall, W. R. Throndset, A. B. Rossi, R. J. Armstrong, B. P. Fox, E. H. Chan, Y. Luo, E. Masuda, D. A. Ferrick, D. C. Anderson, D. G. Payan, and G. P. Nolan. 2000. Retroviral delivery of peptide modulators of cellular functions. Mol Ther. **1**:438-47.

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OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, etc.)		
		Matthews, D. A., P. S. Dragovich, S. E. Webber, S. A. Fuhrman, A. K. Patick, L. S. Zalman, T. F. Hendrickson, R. A. Love, T. J. Prins, J. T. Marakovits, R. Zhou, J. Tikhe, C. E. Ford, J. W. Meador, R. A. Ferre, E. L. Brown, S. L. Binford, M. A. Brothers, D. M. DeLisle, and S. T. Worland. 1999. Structure-assisted design of mechanism-based irreversible inhibitors of human rhinovirus 3C protease with potent antiviral activity against multiple rhinovirus serotypes. Proc Natl Acad Sci U S A. **96:**11000-7
		Miller, A. D., and G. J. Rosman. 1989. Improved retroviral vectors for gene transfer and expression. Biotechniques. **7:**980-2, 984-6, 989-90.
		Mosser, A. G., D. A. Shepard, and R. R. Rueckert. 1994. Use of drug-resistance mutants to identify functional regions in picornavirus capsid proteins. Arch Virol Suppl. **9:**111-9.
		Neubauer, C., L. Frasel, E. Kuechler, and D. Blaas. 1987. Mechanism of entry of human rhinovirus 2 into HeLa cells. Virology. **158:**255-8.
		Noble-Harvey, J., and K. Lonberg-Holm. 1974. Sequential steps in attachment of human rhinovirus type 2 to HeLa cells. J Gen Virol. **25:**83-91.
		Norman, T. C., D. L. Smith, P. K. Sorger, B. L. Drees, S. M. O'Rourke, T. R. Hughes, C. J. Roberts, S. H. Friend, S. Fields, and A. W. Murray. 1999. Genetic selection of peptide inhibitors of biological pathways. Science. **285:**591-5.
		Orr, D. C., A. C. Long, J. Kay, B. M. Dunn, and J. M. Cameron. 1989. Hydrolysis of a series of synthetic peptide substrates by the human rhinovirus 14 3C proteinase, cloned and expressed in Escherichia coli. J Gen Virol. **70:**2931-42.
		Palmenberg, A. 1987. Antipeptide antibodies. A vaccine for the common cold? Nature. **329:**668-9.
		Patick, A. K., S. L. Binford, M. A. Brothers, R. L. Jackson, C. E. Ford, M. D. Diem, F. Maldonado, P. S. Dragovich, R. Zhou, T. J. Prins, S. A. Fuhrman, J. W. Meador, L. S. Zalman, D. A. Matthews, and S. T. Worland. 1999. In vitro antiviral activity of AG7088, a potent inhibitor of human rhinovirus 3C protease. Antimicrob Agents Chemother. **43:**2444-50.
		Resnick, D. A., A. D. Smith, A. Zhang, S. C. Geisler, E. Arnold, and G. F. Arnold. 1994. Libraries of human rhinovirus-based HIV vaccines generated using random systematic mutagenesis. AIDS Res Hum Retroviruses. **10:**S47-52
		Smith, A. D., D. A. Resnick, A. Zhang, S. C. Geisler, E. Arnold, and G. F. Arnold. 1994. Use of random systematic mutagenesis to generate viable human rhinovirus 14 chimeras displaying human immunodeficiency virus type 1 V3 loop sequences. J Virol. **68:**575-9.
		Smith, T. J., N. H. Olson, R. H. Cheng, H. Liu, E. S. Chase, W. M. Lee, D. M. Leippe, A. G. Mosser, R. R. Rueckert, and T. S. Baker. 1993. Structure of human rhinovirus complexed with Fab fragments from a neutralizing antibody. J Virol. **67:**1148-58.
		Stott, E. J., and G. F. Heath. 1970. Factors affecting the growth of Rhinovirus 2 in suspension cultures of L132 cells. J Gen Virol. **6:**15-24.
		Wang, W., W. M. Lee, A. G. Mosser, and R. R. Rueckert. 1998. WIN 52035-dependent human rhinovirus 16: assembly deficiency caused by mutations near the canyon surface. J Virol. **72:**1210-8.

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		Xing, L., K. Tjarnlund, B. Lindqvist, G. G. Kaplan, D. Feigelstock, R. H. Cheng, and J. M. Casasnovas. 2000. Distinct cellular receptor interactions in poliovirus and rhinoviruses. Embo J. **19:**1207-16.
		Yin, F. H., and E. Knight. 1972. In vivo and in vitro synthesis of human rhinovirus type 2 ribonucleic acid. J Virol. **10:**93-8.
		Yin, F. H., and N. B. Lomax. 1983. Host range mutants of human rhinovirus in which nonstructural proteins are altered. J Virol. **48:**410-8.
		Zalman, L. S., M. A. Brothers, P. S. Dragovich, R. Zhou, T. J. Prins, S. T. Worland, and A. K. Patick. 2000. Inhibition of human rhinovirus-induced cytokine production by AG7088, a human rhinovirus 3C protease inhibitor. Antimicrob Agents Chemother. **44:**1236-41
		Heinz, B. A., and L. M. Vance. 1995. The antiviral compound enviroxime targets the 3A coding region of rhinovirus and poliovirus. J Virol. **69:**4189-97.
		Heinz, B. A., and L. M. Vance. 1996. Sequence determinants of 3A-mediated resistance to enviroxime in rhinoviruses and enteroviruses. J Virol. **70:**4854-7.
		Lee, M. S., B. Cohen, J. Hand, and D. J. Nokes. 1999. A simplified and standardized neutralization enzyme immunoassay for the quantification of measles neutralizing antibody. J Virol Methods. **78:**209-17.
		Reagan, K. J., M. L. McGeady, and R. L. Crowell. 1981. Persistence of human rhinovirus infectivity under diverse environmental conditions. Appl Environ Microbiol. **41:**618-27.
		Roninson, I. B., A. V. Gudkov, T. A. Holzmayer, D. J. Kirschling, A. R. Kazarov, C. R. Zelnick, I. A. Mazo, S. Axenovich, and R. Thimmapaya. 1995. Genetic suppressor elements: new tools for molecular oncology-- thirteenth Cornelius P. Rhoads Memorial Award Lecture. Cancer Res. **55:**4023-8.
		Sandrock, T. M., B. Risley, B. T. Richards, M. A. Poritz, H. A. Austin, S. Yoo, M. K. Kim, B. Roth, K. Repetny, F. Hsu, M. Stump, D. H. Teng, and A. Kamb. 2001. Exogenous peptide and protein expression levels using retroviral vectors in human cells. Mol Ther. **4:**398-406.

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